

The role of export restrictions in agricultural trade¹

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Abstract

During the last global downturn, which took place in a period of rising commodity prices, both the academia and global leaders warned about the risk of a protectionist reaction to the crisis, which would in turn decrease trade volumes and deepen the crisis. In spite of this, several protectionist measures were taken during the period. Export restrictions, which comprise export taxes, export bans, export license requirements, and price reference for exports, among other policies, were among the measures more frequently applied.

There is evidence that these measures may have exacerbated the food price spike. However, the existing studies do not distinguish between the different export restrictive measures, consider export restriction and import promotion policies altogether, or focus only on few agricultural goods. The aim of this paper is to fill this gap and make a comprehensive analysis of the role of export restrictions and import promoting policies on agricultural prices during the food crisis.

To do so, we built a comprehensive database, which includes information on export restrictions applied in the agriculture sector by all countries in the world in the period 2005-2015. Our database includes information on products affected (at HS6 level), duration of the measure, type of measure, and justification. A preliminary analysis of information included in our database shows that in the period 2005-2015, 32 countries took 293 measures that introduced some form of export restriction, that increased restrictions already in place, or that extended measures already in place. The main agricultural sectors affected by export restrictions were cereals, oilseeds, vegetables, milling products, raw hides, live animals, and sugar; and the main measures applied were export bans (28.7% of total measures), export quotas (25.3%), and export taxes (20.8%). On average, export taxes last longer (4.8 years), whereas export bans are more frequently applied shorter periods of time.

Introduction

During the last global downturn, which took place in a period of rising commodity prices, both the academia and global leaders warned about the risk of a protectionist reaction to the crisis, which would in turn decrease trade volumes and deepen the crisis. In spite of this, several protectionist measures were taken during the period. Export restrictions, which comprise export taxes, export bans, export license requirements, and price reference for exports, among other policies, were among the measures more frequently applied.

In fact, such measures have been applied historically for various reasons: for environmental reasons, to improve terms of trade, for food security purposes, to promote industrialization, to increase fiscal revenue, among many others. However, in a context of increasing food prices, export restrictions are usually applied in order to isolate domestic prices. When a food exporting country imposes export restrictions, there is an excess of domestic supply, which lowers domestic prices. If the country imposing the measure is a large exporter of the good (i.e. it has market power in the global market), the measure has an impact on international prices, as export volumes fall. The increase in international prices could also take place when many small exporters apply such measures (see Bouët and Laborde 2010 for a theoretical presentation of the partial equilibrium effects of export taxes). Globally, export restrictions create distortions that have negative impacts on welfare: as Laborde, Estrades and Bouët (2013) find, removing all existing export taxes would lead to welfare gains of about 33 billion dollars per year.²

² These results only consider the removal of export taxes. Gains would be higher if other export restrictions were incorporated in the analysis.

Many efforts were made in the last years in order to have a clear picture of the number and extent of export restraint measures applied during the food crisis, as well as its impact on food prices. OECD built a database that focus on period 2007-2012, which includes all type of export restrictions (export taxes and surtaxes, export quotas, export bans, non-automatic licensing requirements, reference export price, other export measures). The focus is on big countries that have an incidence on global prices (OECD, 2015). Another recent effort was the Panel Export Tax (PET) database, which includes information only on export taxes and on nine exporting countries (Solleder, 2013). Finally, Laborde, Estrades and Bouet (2013) also built a database only focusing on export taxes at the exporter/HS level, which includes all countries for which there is available information. All the available databases include information up to 2012. However, the number of new measures applied in all sectors of activity has increased in the last few years, even in a context of decreasing food prices. This highlights the need for counting with an updated database.

Evidence suggests that export restrictions, together with other price insulating policies, contributed to an overall increase in food prices (Martin and Anderson 2012; Anderson and Nelgen 2012; Jensen and Anderson 2014; Giordani et al. 2014; Mitra and Josling 2009; Solleder 2013; Headey 2011). However, most studies focus on few markets (usually, grains and oilseeds), consider all types of price insulating policies altogether; and do not consider other export restrictions besides export taxes.

The aim of this paper is to contribute to the existing literature that focuses on the role of export restrictions on agricultural trade. With this in mind, we provide first an overall discussion of export restrictions and their use globally, with a focus on agricultural trade. A special focus is made on the imposition of export restrictions during the food price spikes of 2006-08 and 2010-11. Second, we carry out a descriptive analysis of currently applied export restrictions, providing information by country and sector. In order to do this, we built a database of all export restrictions measures applied in the agricultural sector in the last ten years, with the aim of filling the information gap in previous databases, which do not cover all types of export restrictions measures applied by all countries. To our knowledge, it is the most comprehensive database of export restrictions applied on agricultural goods. The information from the database is then used to analyze the incidence of export restrictions, by country, type of product, type of measure, and time span; and to build a wider database which also includes information on bilateral trade flows and applied tariffs, in order to analyze the effect of export restrictions on agricultural trade and international food prices.

Literature

What we talk about when we talk about export restrictions

Export restrictions are trade policy instruments applied by exporting countries, with the aim of controlling or banning exports of certain products. Restrictions can directly affect the volume of exports of a product, or indirectly by increasing the cost of exporting the good. Among the former we usually find export quotas, which restrict the volume of exports; and export bans, which prohibits exports. Among the later we typically find export taxes, which can be defined in ad valorem rates, specific rates or a combination of both. Specific export taxes imply that, defined in ad valorem terms, rates increase if domestic prices are lower. For this reason, in many cases specific export taxes are combined with ad valorem export taxes, in order to guarantee a minimum applied rate. Also to guarantee a minimum rate, ad valorem export taxes are sometimes defined in terms of reference prices, usually set by the government, which means that for certain products in some countries, rates are defined as often as on a weekly basis.³ Minimum export prices, if not applied in conjunction with export taxes, serve also as a

³ A typical example is the export tax on Crude Palm Oil applied by Malaysia. Tax rates are defined on a weekly basis, according to palm oil prices estimated by the Malaysian Palm Oil Board.

way of controlling invoicing or the quality of exported goods. Other restriction export restrictions comprise non-automatic export licenses, which may increase exporting costs both in time and monetary, refuse reimbursement of value-added tax (VAT) on exports, mandatory registration of exporting firms, among others (see OECD 2015 for an exhaustive list).

Export restrictions have been historically applied on “raw” materials: minerals and metals, agricultural commodities, and wood. In this paper, we will focus on restrictions applied on agriculture products, because the logic behind the restrictions of agriculture exports may be very different than for other products.

Effects of export restrictions

Either by directly reducing the volume of exports, or by increasing the costs of exports, exports restrictions reduce export supply. As export supply is restricted or banned, domestic supply increases and domestic prices fall. At lower domestic prices, domestic consumption increases, and public revenue rises. Domestic producers and exporters are hurt by the measure, and the net welfare effect is negative. This mechanism works if the country is small and does not have an influence on global markets. If the country has market power in world markets of the exported good, the fall in export supply due to export restrictions will reduce world supply and thus increase global prices. As a consequence, trade volumes will be reduced even more, and the exporting country gains from an improvement in its terms of trade. Thus, big countries may have an incentive to apply an optimal export tax rate that maximizes welfare. As Bouet and Laborde (2010) explain, the optimal rate will depend on the elasticities of consumption, production and trade; i.e. it is not only important to assess if the exporter has market power, but also if the exported good has substitutes in the world market.

The net result on welfare on the exporting country will depend on welfare gains due to gains in terms of trade and in consumer surplus, and the exporters’ welfare losses. Under the hypothesis of an exporter with market power, the importing country loses terms of trade, and foreign consumers lose welfare, as they now pay a higher price for the good.

For this reason, export restrictions can be seen as beggar-thy-neighbor policies (Piermartini 2004). However, countries with market power as importers may also behave strategically, and apply policies in order to retaliate against export restrictions, such as a reduction in applied tariff rates. As a consequence, international prices may increase even more, leading to a “trade war” with negative consequences of small countries and consumers (Bouët and Laborde 2010).

Export restrictions and agriculture products

Given the potential conflicts associated to the application of export restrictions, why do countries impose such measures?

One of the main reasons for applying export restrictions, especially regarding export restrictions in the agriculture sector, is for food security purposes. As one direct effect of imposing an export restriction is a decrease in domestic prices, export restrictions have been frequently applied in order to control inflationary pressures and guarantee domestic supply of key goods. However, as Piermartini (2004) explains, in the long run export restrictions may have the opposite effect, as they might affect investment in exporting sectors, which in turn decrease their production, resulting in higher domestic prices. For this reason, export restrictions in this context are usually applied as short term measures. As we will analyze in higher detail in the next section, this argument was frequently mentioned when countries imposed restrictions on agricultural exports during the recent food crisis.

Export restrictions lower both final consumption prices and intermediate consumption prices. Thus, another reason to apply restrictions is to encourage the development of industries based on agriculture raw materials. In this way, export restrictions work as indirect subsidies for downstream industries, which are benefited with an effective protection, similar to the one obtained by applying escalating tariffs. In this regard, many developing countries apply what is known as differential export taxes, i.e. export taxes with decreasing rates along the production chain value, as a reaction to tariff escalation applied by developed countries. Examples of differential export taxes are found in soybean sector in Argentina and in the palm oil sector in Malaysia. As Bouët et al. (2014) show, implementing a tax on exports of raw materials may increase welfare in the exporting country when it also exports a processed good based on the raw material. In spite of this, differential export taxes are a cause of trade distortions, but as they are seen as a response to tariff escalation applied by importing countries, both measures should be discussed together.

If the country imposing the restriction has market power in the world markets, there is a terms of trade argument to apply restrictions, and this conclusion stands disregarding any strategic behavior of trading partners (Devarajan et al. 1996). The optimal tax rate (or export quota) will be the one that maximizes welfare, and it is given by the inverse of the elasticity of demand (the rationale is the same for importers with market power applying optimal tariffs). However, as the country imposing the restrictions has a terms of trade gain, the importing countries have terms of trade losses, and the overall effect is usually negative. Besides, if the importer is a big country, it may retaliate by decreasing tariffs, and thus the terms of trade gains would evaporate. For these reasons, the terms of trade argument is not frequently used as justification for imposing an export restriction.

Export taxes are also applied in order to improve income distribution. As domestic prices of key staples fall as a consequence of export restrictions, poor populations may benefit from the fall in domestic prices. However, export restrictions have also an effect on factor prices, which should also be taken into account in order to estimate the effect on income distribution (Piermartini 2004). Warr (2002) applies a general equilibrium model for the Philippine economy and analyzes the argument for an export tax on the coconut sector. The author finds that the factor prices changes dominates the final consumption prices. Even when domestic prices of goods fall under an export tax, real wages of unskilled labor fall and thus poor population is hurt by the measure. After devaluations, some countries impose export taxes as a political economy argument to improve income distribution. Even when it is true that the exporting sector may benefit strongly from the devaluation, as Devarajan et al (1996) argue, when the opposite happens (i.e. highly appreciated currencies episodes) export subsidies should be applied, but this usually does not happen.

Export taxes were historically used in order to collect revenue (see Solleder 2013 for a short historical introduction to export taxes). However, nowadays few countries collect public revenue from export taxes, and none of them collects more than 5% of public revenue from it (ICTD Government Revenue Database, Prichard et al. 2014).

Other justifications for imposing export restrictions are as a means for conservation of species and avoid deforestation; for sanitary reasons; for political reasons; among others

Disciplines in agricultural export restrictions

In spite of the distortions that export restrictions have on world markets, they are not prohibited or regulated by the WTO. With the conclusion of the Uruguay Round in 1994, export restrictions were included in provisions at the GATT (Article XI) and at the Agreement on Agriculture (Part VI, Article 12). Article XI of GATT establishes that quantitative measures, such as export bans, quotas or licences shall not be applied, except temporary measures “applied to prevent or relieve critical shortages of

foodstuffs or other products essential to the exporting contracting party". The Agreement on Agriculture extends on these exceptions, and states that countries imposing the measure shall notify WTO and importing countries with the measure applied (see Table A1 in Annex for the GATT and AoA articles).

Two facts explain the under regulation of export restrictions at the Uruguay Round. The first one, according to Bouët et al. (2013), is that the mercantilist interests prevailed at the moment, and the main offensive interests were placed in protection from imports. The second one, according to Anania (2014), is that when the Uruguay Round was launched, commodity prices were low and stocks were high.

In the last years, these two facts have changed, and now several countries have placed the focus on export restrictions, partly because import tariffs have effectively been reduced, and commodity prices started to increase sharply in mid-2000s.

Nowadays, there is a call for tighter provisions regarding export restrictions. At the multilateral level, not much has been done. Two proposals within the Doha Round made an attempt to control Differential Export Taxes, one of them linked to the removal of tariff escalation on the import side (Sharma 2011), but there is no further development on the issue. G20 Summits in 2011 and 2012 decided to eliminate export restrictions and extraordinary taxes on food purchased for non-commercial humanitarian purposes, mainly by the World Food Program, but these decisions were not discussed at WTO (Härbeli 2014).

Regardless of this, within the WTO disciplines on export restrictions are imposed to new countries joining the WTO. As part of its accession protocol to WTO, Ukraine agreed to progressively reduce export taxes applied on oilseeds and live cattle and hides (WTO 2008). Vietnam, Cambodia, China, and Armenia also undertook some commitments regarding export restrictions in their Accession Protocols to WTO, although some of these commitments may have not been fully complied. For example, in its accession in 2001, China committed not to apply export taxes other than on 84 items listed, but in 2008 the country imposed export duties on 334 tariff lines (Kim 2010).

Korinek and Bartos (2012) made a review of provisions on export restrictions included in regional trade agreements (RTA). In a review of 93 RTA, they find that only 16% include provisions that are stricter than WTO provisions regarding quantitative export restrictions. However, more than 70% include explicit disciplines regarding export taxes, which are not included explicitly at the GATT. Regarding agriculture products, some RTA include lists of products for which countries may impose export restrictions (quantitative or taxes), in some cases within a specific period of time; and most RTA allow exemptions to export restrictions bans in case there is shortage of foodstuffs. The authors find that in general, RTA provisions on export restrictions increase transparency among members, as they usually establish a way of communicating new restrictions to other members, often in advance, thus improving predictability as well.

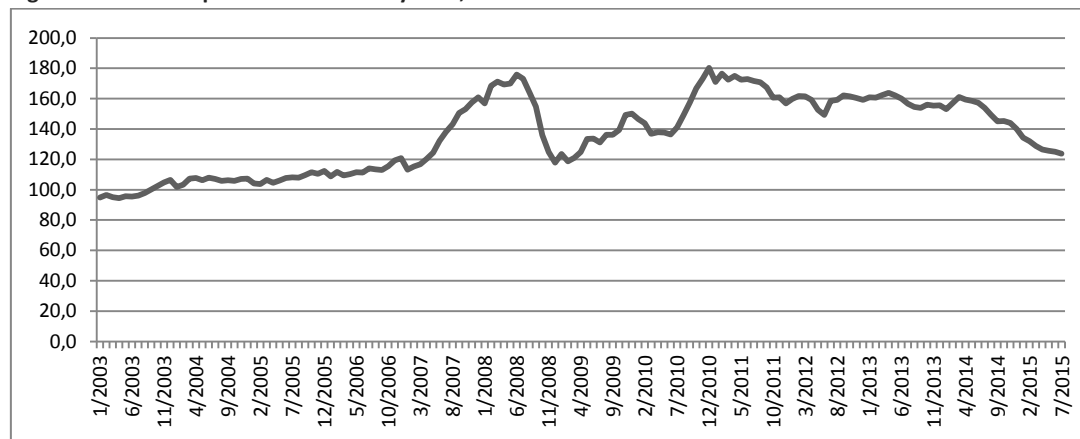
Disciplines on export restrictions have been included in the recent TransPacific Partnership (TPP) Agreement. The TPP seeks to discourage the application of export restrictions as a means of reacting to changes in world markets, but it allows temporary export restrictions on foodstuffs, as long as members notify to other members in advance. In the agreement, there is an explicit mention to the need of securing food security in the Asia region, for countries not members of TPP, such as Cambodia and Bangladesh.

Export restrictions and the recent food crisis

As it was mentioned, export restrictions are frequently applied in the context of rising food prices. According to WFP (2009), it happened during the 1970s food price crisis, and it also seems to have

happened during the recent food price crisis (2006-2008 – 2011-2012). As Figure 1 shows, food prices increased sharply during those years. Even though the causes were diverse (see Headey and Fan 2008; Piesse and Thirtle 2009; Hochman et al. 2014; Tadesse et al. 2014 for different review of causes), according to several authors, the spikes may have been exacerbated by trade policies in general and export restrictions in particular.

Figure 1. Real food price index. Monthly data, deflated. Index 2002-2004= 100



Source: Own elaboration with data from FAO

Martin and Anderson (2011), Anderson (2012), Anderson and Nelgen (2012), and Anderson, Ivanic and Martin (2013) analyze the impact of price insulating policies during 2006-2008 in key agricultural goods (rice, wheat, edible oils and maize), and find that insulating policies contributed to the rise in international prices. Even though some countries were effective in insulating from international prices, the global response to the increase in prices offset the policies aimed at insulating domestic prices. In that sense, Martin and Anderson (2011) find that 45% of the increase in wheat prices and 30% of the increase in rice prices during 2006-08 was due to border measures applied in order to insulate domestic prices. The methodology applied in these studies consider to overall impact of price insulating policies, which may comprise both export restriction and import promotion policies.

Giordani et al. (2014) also provide evidence that during the 2008-11, there was a “multiplier effect” of trade policies on food prices. The authors develop a model of food trade policy and test it empirically with a database of 77 countries and 33 agricultural commodities. Again, the authors do not differentiate the different policies, i.e. they consider export restrictions and tariff reductions altogether.

Headey (2011) distinguishes between both types of trade policies. The author provides some back-of-the-envelope measures to highlight the role of trade policies in higher food prices, but the focus is on only four key markets (rice, wheat, maize and oilseeds).

Solleder (2013) restricts the analysis to the role of export taxes on all types of commodities. She estimates a gravity equation in which she includes information of export taxes applied during the crisis period. The author finds a positive effect on prices, but results are mainly driven by the extractive sector.

In spite of the evidence that verifies the impact of trade policies on agricultural prices, to our knowledge no study has analyzed the differentiated impact of export restrictions on one side and import policies on the other on all agricultural markets. Besides, there is no study that distinguished the impact of the different export restriction policies. This is one of the aims of this study. In the next section we present the data and methodology applied to address this question.

Methodology

Construction of database

As countries are not obliged to notify to WTO export restrictions, there is no systematic registration of export restrictions applied. Therefore, in order to carry out our analysis, we first built a comprehensive database of all export restrictions applied worldwide. We restricted its coverage in terms of time, and thus we took a 10 year lapse, between 2005 and 2014 (with some updated information up to 2015), and we restricted the analysis for agriculture products as defined by the WTO. The database includes information on introduction of measures, as well as modifications and elimination of measures applied by the exporting country. Only measures that were issued by legal authorities at the national level were included. We include all type of export restrictions: export taxes, export bans, export quotas, reference or minimum prices, non-automatic export licenses and other measures.

We took information from many different sources, and in each case we checked the information with official information from the country issuing the measure. Our main sources of information were WTO Trade Policy Reviews, Global Trade Alert webpage and available databases on export restrictions: WTO Trade Monitoring Database, OECD inventory of restrictions on exports of raw materials, Agricultural Market Information System (AMIS) policy database, FAO Food price monitoring and analysis, EC Market Access Database and Panel Export Taxes (PET) database (Solleder 2013).

We included short time measures, as short as few weeks, in order to capture the volatility of export restrictions, especially during the food price crisis. We also included information on the official justification of measures, in case information is provided. To our knowledge, it is the most comprehensive database on export restrictions up to date.

Database for estimation

In order to estimate the impact of export restrictions on trade and prices, we introduced some modifications to our database. First, we made the conversion of the different HS nomenclatures to HS 2002 codes (6 digit level). This implied in some cases taking averages of different measures defined at a higher national level –i.e. 8 or 10 digits.

Second, we annualized measures, such as in the database there is only one observation per exporting country, HS6 product and year. This also implied taking averages, in case some measures were applied for few months. In order not to lose information, we included the average rate taking into account the number of weeks the measure was in force, and also the maximum rate applied in that year – in case exports only took place during the time the maximum rate was in force.

Third, we estimated ad valorem equivalents of specific taxes, taking unit values by exporter – importer – year. As much as possible, we defined specific taxes to dollars per metric ton, using exchange rates information from World Development Indicators. This way, the database includes, for export taxes, six variables: average ad valorem rate, maximum ad valorem rate, average EAV rate, maximum EAV rate, average rate and maximum rate. The last two variables combine rates defined in ad valorem terms and specific taxes.

For other measures that are not export taxes, we introduced dummy variables that indicate the presence of the measure in the year, as well as time variable that shows the number of days the measure was in force during that year.

Other information

We included information on trade flows, in value and in volume, and average tariffs applied on a bilateral basis on the same products. Trade data was taken from BACI. Tariff data is from TRAINS.

Results

To be finished

Conclusions

To be finished

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Annex

Table A1. Provisions on export restrictions in GATT and Agreement on Agriculture

Article XI GATT (1994)	1 No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licences or other measures, shall be instituted or maintained by any contracting party on the importation of any product of the territory of any other contracting party or on the exportation or sale for export of any product destined for the territory of any other contracting party. 2 The provisions of paragraph 1 of this Article shall not extend to the following: (a) Export prohibitions or restrictions temporarily applied to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting contracting party; (b) Import and export prohibitions or restrictions necessary to the application of standards or regulations for the classification, grading or marketing of commodities in international trade;
Agreement on Agriculture (1994)	Part VI: Article 12 Disciplines on Export Prohibitions and Restrictions 1. Where any Member institutes any new export prohibition or restriction on foodstuffs in accordance with paragraph 2(a) of Article XI of GATT 1994, the Member shall observe the following provisions: (a) the Member instituting the export prohibition or restriction shall give due consideration to the effects of such prohibition or restriction on importing Members' food security; (b) before any Member institutes an export prohibition or restriction, it shall give notice in writing, as far in advance as practicable, to the Committee on Agriculture comprising such information as the nature and the duration of such measure, and shall consult, upon request, with any other Member having a substantial interest as an importer with respect to any matter related to the measure in question. The Member instituting such export prohibition or restriction shall provide, upon request, such a Member with necessary information. 2. The provisions of this Article shall not apply to any developing country Member, unless the measure is taken by a developing country Member which is a net-food exporter of the specific foodstuff concerned.